

Claims

1. (Currently Amended) A process for the preparation of compound fertilizer granules containing plant nutrient nitrogen and at least one of the plant nutrients phosphorus and potassium, said process comprising the steps of:

providing a solid feed material comprising at least solid urea fertilizer raw material and optionally recycle material,

~~feeding the feed material or a part thereof into a melter for melting a desired~~
portion of the feed material with a melter without melting another portion of said feed
material with the melter thereof and keeping said desired portion in molten state to
provide a partly molten feed material in which substantially less than 100% of said feed
material is molten,

~~feeding granulating~~ the partly molten feed material and optionally ~~other desired~~
solid raw materials ~~to~~ with a granulator to obtain a granulated product, and

cooling and optionally screening the granulated product to obtain dry compound
fertilizer granules having a desired size distribution,

provided that no water or aqueous liquid is introduced into the process.

2. (Original) A process according to claim 1, wherein the process is
carried out continuously, and the molten portion of the feed material is kept constant
during the process by controlling the flow rate of the feed material and the temperature
of the melter.

3. (Previously Presented) A process according to claim 1, wherein the temperature of the partly molten feed material is between 70 °C and 135 °C.

4. (Previously Presented) A process according to claim 1 wherein the melting is effected by introducing hot air into said melter.

5. (Original) A process according to claim 4, wherein the temperature of the hot air introduced into the melter is between 200 ° C and 550 ° C.

6. (Previously Presented) A process according to claim 1, wherein from 10 to 40% by weight of the feed material melts in the melter.

7. (Previously Presented) A process according to 1, wherein said solid feed material to be fed into the melter comprises all individual components of the raw materials.

8. (Previously Presented) A process according to claim 1, wherein said solid feed material to be fed into the melter comprises one or some of the individual components of the raw materials, and the rest of the components is fed to the granulator.

9. (Previously Presented) A process according to claim 1, wherein said solid feed material to be fed into the melter is preheated.

10. (Previously Presented) A process according to claim 1, wherein the solid raw material to be fed to the granulator is preheated.

11. (Previously Presented) A process according to claim 9, wherein the material is preheated to a temperature in the range from 80 °C to 110 °C.

12. (Previously Presented) A process according to claim 1, wherein the granulation temperature is in the range from 75 °C to 125 °C.

13. (Previously Presented) A process according to claim 1, wherein the fertilizer raw materials in addition to urea comprise of least one other material selected from the group consisting of diammonium phosphate (DAP), K_2SO_4 (SOP), monoammonium phosphate (MAP), potassium chloride (MOP), phosphate rock, single superphosphate (SSP), triple superphosphate (TSP), ammonium sulfate (AS) and ammonium chloride (AC).

14. (Original) A process according to claim 13, wherein the fertilizer raw materials comprise urea and at least one other of said fertilizer raw materials.

15. (Previously Presented) A process according to claim 1, wherein additionally at least one material selected from the group consisting of magnesium sulfate and micronutrients is introduced into the process.

16. (Previously Presented) A process according to claim 1, wherein additionally at least one filler selected from the group consisting of bentonite, calcite, calcium oxide, anhydrous calcium sulfate, calcium sulfate hemihydrate, dolomite, and sand, is introduced into the process.

17. (Original) A process according to claim 1, wherein the undersize material and the oversize material obtained in the screening are recirculated as said recycle material, said oversize material optionally being milled after the screening.

18. (Previously Presented) A process according to claim 1, wherein the moisture content of the dry compound fertilizer granules is below 0.6% by weight.

19. (Previously Presented) A process according to claim 12, wherein the granulation temperature is in the range from 80°C to 125°C.

20. (Previously Presented) A process according to claim 18, wherein the moisture content of the dry compound fertilizer granules is below 0.3% by weight.

Please add the following new claims:

21. (New) A process according to claim 1, wherein the granulator performs true solid granulation without the aid of water or aqueous liquid and the process is free from drying the granulated product with drying equipment.

22. (New) A process according to claim 1, wherein said desired portion is about 10-40 wt-%.